

ABSTRACT OF THE DISCLOSURE

After a lower silicon oxide film is formed on a silicon region, a silicon film is formed on the lower silicon oxide film by, for example, a thermal CVD method. Subsequently, the silicon film is completely nitrided by a plasma nitriding method to be replaced by a silicon nitride film. Subsequently, a surface layer of the silicon nitride film is oxidized by a plasma oxidizing method to be replaced by an upper silicon oxide film. An ONO film as a multilayered insulating film composed of the lower silicon oxide film, the silicon nitride film, and the upper silicon oxide film is formed.